UNITED
NATIONS

Framework Convention on
Climate Change

Distr.
GENERAL

FCCC/NC/17
2 April 1996

Original: ENGLISH

EXECUTIVE SUMMARY OF THE NATIONAL COMMUNICATION OF THE

REPUBLIC OF ESTONIA

submitted under Articles 4 and 12 of the
United Nations Framework Convention on Climate Change

In accordance with decision 9/2 of the Intergovernmental Negotiating Committee of the Framework Convention on Climate Change (INC/FCCC) and endorsed by the Conference of the Parties in its decision 3/CP.1 (FCCC/CP/1995/7/Add.1), the secretariat is to make available, in the official languages of the United Nations, the executive summaries of the national communications submitted by Annex I Parties.

Note: Executive summaries of national communications issued prior to the first session of the Conference of the Parties bear the symbol A/AC.237/NC/___.

GE.96-61072

Copies of the national communication of the Republic of Estonia may be obtained from the following:

Ministry of Environment
Environment Information Centre
33 Mustamäe tee E0006
Republic of Estonia

Fax No. (372) 639 4071

This document has been reproduced without formal editing.

INTRODUCTION

1. Estonia is situated in the north-western part of the flat East European plain, remaining entirely within the drainage area of the Baltic Sea (see figure 1 on page 4 of the communication). The coastline length is 3,794 km. The country is located between 57.30 and 59.49 degrees latitude and 21.46 and 28.13 degrees longitude. The total area of Estonia is 45,215 km^2, of which 4,132 km^2 (9.2 per cent) is made up of more than 1,500 islands and islets. 19,200 km^2 (42-43 per cent of total land area) of the Estonian territory is made up of productive forest land. The Estonian forests belong to the zone of mixed and coniferous forests with relatively favourable growth conditions. Forests with conifers as dominant tree species make up 63 per cent of the total area of the Estonian forests and 66 per cent of the total forest yield; forests with deciduous trees as dominant species constitute 37 per cent of the forested area and 34 per cent of the forest yield. The peatland area is approximately 10,000 km^2, corresponding to 22 per cent of the territory (partly coinciding with forest areas).

2. Estonia is characterised by a flat topography. The average elevation is 50 m, with the highest point being 318 m above sea level. The country can be divided into two regions: Lower Estonia and Upper Estonia. Upper Estonia comprises the more elevated areas in the central and southern parts of country, which were not covered by the sea during the Holocene. The soils of Upper Estonia are more fertile and the rural population is denser than in Lower Estonia. Of the total population of 1,574,955 (1990 census), 71.4 per cent live in urban areas. The population density is 35/km^2. 51 per cent of the population live in five largest cities (Tallinn 484,400, Tartu 115,400, Narva 82,300, Kohtla-Järve 76,800 and Pärnu 54,200).

3. Estonia belongs to the Atlantic continental region of the temperate zone, which is characterized by rather warm summers and comparatively mild winters. Since the annual amount of precipitation is approximately double that of evaporation, the climate is excessively damp. The amount of solar radiation varies widely during the year. The length of a summer day is three times longer that of a winter day in northern Estonia. The height of the sun reaches 55°C at the summer solstice and only 8°C at the winter solstice.

4. Although not very large in area, Estonia is relatively rich in natural resources, both mineral and biological, which have been and will be the basis of the Estonian economy. The production and processing of mineral resources provide a considerable share of the gross national product (see table 1 below).

Table 1. Active deposits of Estonian mineral resources (Paalme, 1992)

Resource		
Oil shale	3,800	million tons
Phosphorite	260	million tons
Limestone, dolomite	300	million m^3
Sand, gravel	180	million tons
Peat	560	million tons
Lake mud	120	million tons
Curative mud	4	million tons

5. Serious environmental problems are caused by the industrial use of these resources. One of the most important is connected with the excavation of oil shale, which is accompanied by a decline of ground water table, degradation of the quality of the fields and forests, as well as direct reduction of useful land due to the subsidence of soil and the deposition of waste. The area rendered useless by excavation and industrial activity is at least 450 km^2, which comprises about 1 per cent of Estonian territory. The restoration of land for recreation or for the development of industry helps to reduce the negative side effects of the excavated areas. Waste materials of oil shale mining and processing cover thousands of hectares; there are waste heaps with relative heights exceeding 100 m. Those terricones contain a number of compounds emitting or easily washed out with atmospheric precipitations.

6. The most important branch of industry in Estonia is energy. The total power yield of the Estonia and Baltic Thermal Power Plant is about 3,000 MW. About half of the energy produced in 1990 was exported to Russia and Latvia. Approximately 75 per cent of pollutants (CO_2, SO_2, NO_x, fly-ash) is emitted by the Baltic and Estonian TPP, which ranks among the ten biggest sources of air pollution in Europe.

7. The centre of the chemical industry is in the north-eastern part of Estonia, the biggest enterprises being the Kiviõli Oil Shale Chemical Plants and the Kohtla-Järve Oil Shale Processing Association. The chemical industry has been mainly developed on the basis of oil shale and other imported raw materials (natural gas, apatite) for the production of fuel oil, aromatic hydrocarbons, phenols, solvents, cosmetics and pesticides. Estonian agriculture has specialized in livestock breeding of which cattle-breeding is the most important. Loop production yields about one third of the gross agricultural product -- as at 1 January 1990, the overwhelming majority of arable land belonged to collective and state farms. Since then the large farms began to break into private farms and there is now a transitional period of full restructuring of agriculture.

Energy and Industry

8. Estonia does not have any major source of fossil fuels such as oil, coal or natural gas, apart from deposits of oil shale and a substantial part of the fuel used must therefore be imported. The Estonian's energy policy is now focused on reducing fuel imports and increasing the efficiency of energy use.

9. Energy-related activities are the most significant contributors to Estonian greenhouse gas emissions. Emissions from fossil fuel combustion comprise the vast majority of these energy-related emissions with releases of CO_2 from fossil fuel combustion. Activities associated with the production, transmission, storage and distribution of fossil fuels also emit greenhouse gases. These are primary fugitive emissions from natural gas systems, oil shale oil production and oil shale mining. The main gas emitted through these activities is methane, while smaller quantities of NMVOCs, CO_2 and CO can also be emitted. These gases represent a much smaller portion of total energy emissions than CO_2.

10. In 1990 Estonian energy system consumed in total 452000 TJ of fuel. Estonia satisfies most of its energy demand by using fossil fuels. In 1990 oil shale constituted 52.8 per cent of the energy balance (see figure 2 on page 7 of the communication). The share of oil shale in the Estonian energy balance is high, because it is used as a fuel in four oil shale fired power plants. During oil shale combustion CO_2 is formed not only as a burning product of organic carbon, but also as a decomposition product of carbonate part. From 1990 to 1993, electricity production has decreased considerably due to economic depression. It amounted to a decrease in oil shale consumption for electricity generation from 22.4 million tons in 1990 to 15 million tons in 1993. At the same time emissions from transport increased according to the increasing number of transport vehicles. A lot of used old cars and lorries are imported from abroad. Therefore the total emissions from transport vehicles shows continual increasing tendency.

Basic trends in energy policy of the Republic of Estonia

11. Energy policy is proceeding from the general economic policy of the state, interests of consumers and energy companies and environment requirements. An objective is set forth to guarantee the needs of the state in fuel, heat and electric energy at minimum cost and expense, thereby taking into consideration technical, economic and social conditions and environmental requirements.

Forestry

12. Usually the data of 1990, 1991 and 1992 years are used for the estimation of carbon fluxes from Estonian forestry. Current emissions of CO_2 from biomass left to decay are estimated over the previous decade (1980-1990). The tracking of soil carbon, as well as

carbon in product pools, has also been included. Current releases of carbon from soils due to conversions are estimated over the previous 25 years (1965-1990). Immediate release from the burning, delayed release from decay and long-term loss of soil carbon have been used as average data over the period shown before and calculated per year.

13. The availability of data needed, their statistics and confidence in enterprises of the Estonian forestry have been satisfied. There is a consistent and arranged accounting in forestry. The data on fuelwood includes the figures of official fellings, but not of private fellings in the countryside (percentage is insignificant). The data on the wood used in heating are therefore a little doubtful.

14. In 1988 Estonian forests consisted of premature and mature stands (17 per cent), middle-aged stands (53 per cent), and young stands (30 per cent). In exploitable profitable spruce, pine and birch forests young stands are respectively 1-40, 1-40 and 1-20 years old, middle age 41-60, 41-80 and 21-50, premature and mature stands 61, 81 and 51 years old (Karoles *et al.*, 1994).

15. Despite the small area of the territory of Estonia, the growing forests are rather diverse. The great variability brought about by natural conditions (parent material of soil, relief, climatic differences) is in its turn increased by the circumstance that the majority of the forests of Estonia have been affected by man's activities in various degrees and ways (cutting, drainage, fires, etc.).

Agriculture

16. Territory of arable land in Estonia in 1991 was 1,130,000 hectares; the total sown area is 1,110,000 hectares.

17. Estonian agriculture has specialized in livestock breeding. Until the late 1980s, livestock breeding depended largely on fodder imported from the other parts of the former USSR. In consequence, a large amount of milk and meat produced in Estonia was exported to other parts of the Soviet Union. Agriculture chiefly depended on the functioning of collective farms and state farms at that time. Towards the end of the 1980s, the farms began to break into smaller units, and private farms and family farms were established or re-established.

18. In Estonia by 1 January 1991 there were 1,132,000 hectares of arable land, that is, 25 per cent of the territory. At the same time, there are 312,000 hectares of natural grassland and 1,920,000 hectares of forest and woodland (see table 2 below).

19. The total area of sown land in 1991 was 1.11 million hectares. 55.9 per cent of that were under annual and perennial hay; 37.5 per cent -- under cereals and 6.3 per cent -- under potatoes, fodder crops and vegetables. Industrial crops were grown on 3,011 hectares (see figure 3 on page 9 of the communication).

20. The total amount of mineral fertilizers used in collective farms and state farms was 195,200 tons, including 69,800 tons of nitrogen fertilizers. Organic fertilizers were used on an average 7.0 tons per 1 hectare of sown land. To add the amount of fertilizers used in private farms approximately 125,200 tons of nitrogen was put into the soil with fertilizers, from which 70 per cent was nitrogen in the form of mineral fertilizers.

21. The total yield of cereals and legumes amounted to 939.4 thousand tons, of which the yield of barley comprised 66.3 per cent. By 1 January 1991, there were 757.7 thousand cattle, including 280.7 thousand cows. There were also 959.9 thousand pigs, 139.0 thousand sheep and 8.6 thousand horses in the country.

22. In 1991, 177.1 thousand tons of meat, 1092.8 thousand tons of milk and 559.7 million eggs were produced.

23. In the following years landstock of private farms increased by 3.4 times due to farm reconstructions.

24. At the same time the level of agricultural production throughout the country decreased. This can be explained by economic factors. The cost of fertilizers, machinery, and fuel has become higher, but the prices of agricultural products are relatively low. Hence, the profitability of agricultural production is low. Moreover, land legislation is not working out well and remains the most important obstacle to the development of agriculture.

Table 2. Landstock in Estonia

Item	1991 1000 hectares	1992 1000 hectares	1993 1000 hectares
Total landstock	4522.6	4522.6	4522.6
Arable land	1131.9	1131.9	1127.6
gardens	14.9	14.8	14.9
natural grassland	311.6	311.5	312.5
forest and woodland	1920.1	2015.6	2021.8
inland water	283.3	283.3	283.3
Agricultural producers	2538.3	2545.3	2549.1
arable land	1110.7	1111.0	1111.4
gardens	12.7	12.7	12.7
natural grassland	244.3	244.9	244.7
forest and woodland	712.4	814.7	817.9
inland water	55.1	55.3	55.4
Inc. in private farms	62.1	176.7	213.9
arable land	25.6	75.9	91.8
gardens	0.3	0.9	1.1
natural grassland	8.4	19.7	23.0
forest and woodland	18.5	56.9	70.5
inland water	1.1	3.2	3.8

- - - - -